

LOSSLESS VIDEO DATA COMPRESSOR WITH VERY HIGH DATA RATE

ABSTRACT

5 Lossless video data compression is performed in real
time at the data rate of incoming real time video data in a
process employing a minimum number of computational steps
for each video pixel. A first step is to convert each pixel
8-bit byte to a difference byte representing the difference
10 between the pixel and its immediate predecessor in a
serialized stream of the pixel bytes. Thus, each 8-bit
pixel byte is subtracted from its predecessor. This step
reduces the dynamic range of the data. A next step is to
discard any carry bits generated in the subtraction process
15 of two's complement arithmetic. This reduces the data by a
factor of two. Finally, the 8-bit difference pixel bytes
thus produced are subject to a maximum entropy encoding
process. Such a maximum entropy encoding process may be
referred to as a minimum length encoding process. One
20 example is Huffman encoding. In such an encoding process, a
code table for the entire video frame is constructed, in
which a set of minimum length symbols are correlated to the
set of difference pixel bytes comprising the video frame,
the more frequently occurring bytes being assigned to the
shorter minimum length symbols. This code table is then
25 employed to convert the all of the difference pixel bytes of
the entire video frame to minimum length symbols.

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